

CLAIMS:

1. An apparatus for preparing and supplying a slurry to a chemical mechanical polishing machine, said slurry containing liquid components, which comprise at least a dispersion of fine abrasive particles and a solution of an additive, at a predetermined mixing ratio, comprising:

drawports for separately drawing therethrough said liquid components, said draw ports corresponding in number to said liquid components;

a discharge port for supplying said slurry to said chemical mechanical polishing machine;

feed pumps arranged on feed lines for said liquid components, respectively, said feed lines extending from said individual draw ports to said discharge port, such that said feed pumps can draw the corresponding liquid components in specific amounts to give said mixing ratio and can deliver the thus-drawn liquid components toward said discharge port, respectively;

dampers and pressurization valves arranged in combinations on the respective feed lines on delivery sides of said feed pumps;

flowmeters arranged on said respective feed lines on downstream sides of the corresponding combinations of said dampers and pressurization valves for measuring delivery rates from the corresponding feed pumps; and

a programmable logic controller for controlling delivery rates of the individual feed pumps by using measurement values from said flowmeters.

2. An apparatus according to claim 1, further comprising at least one isolator arranged between one of said draw ports and its corresponding feed pump.

3. An apparatus according to claim 1, wherein said programmable logic controller performs PID control by using deviations of measurement values of said respective flowmeters from predetermined flow rates preset for delivering said liquid components in specific amounts by said feed pumps, respectively, and also control to follow up changes in said predetermined flow rates.

4. An apparatus according to claim 1, further comprising a feed line for feeding deionized water to said feed line for said dispersion of fine abrasive particles and a means for cleaning and flushing with the deionized water said feed line for said dispersion of fine abrasive particles.

5. An apparatus according to claim 1, further comprising a mixer arranged on said feed lines at a position between said individual flowmeters and said discharge port for performing mixing of said individual liquid components.

6. A method for preparing and supplying, to plural chemical mechanical polishing machines, slurries at flow rates and with compositions as required by said chemical mechanical

polishing machines, which comprises connecting slurry preparing and supplying apparatuses as defined in claim 1 to said chemical mechanical polishing machines, respectively, such that said liquid components, which comprise at least said dispersion of fine abrasive particles and said solution of said additive, can be parallelly supplied to said individual chemical mechanical polishing machines via the corresponding slurry preparing and supplying apparatuses.

7. A method according to claim 6, further comprising:  
inputting from said individual chemical mechanical polishing machines to said programmable logic controller information on predetermined amounts of said individual liquid components required by said chemical mechanical polishing machines, respectively;

monitoring for changes in said predetermined amounts; and  
performing control of delivery rates from said respective feed pumps by using deviations of measurement values of said flowmeters from said predetermined amounts.